

The Comparative Anatomy and Physiology of the Nervous System.—(F) Leuret's and Gratiolet's *Anatomie Comparée du Système Nerveux*, Tom. ii., par M. Pierre Gratiolet, 1857; (F) Vulpian's *Leçons sur le Système Nerveux*; Brown-Séquard's *Lectures*, 1865.

The Comparative Anatomy and Physiology of the Reproductive Systems.—Physiological Catalogue of the Royal College of Surgeons, vols. iv. and v.; (G) Kölliker's *Entwicklungsgeschichte*, 1861; (F) Milne-Edwards *Leçons*, vol. ix.

Ethnology.—Brace's *Races of the Old World*, ed. 2, 1870.

5. Candidates who offer themselves for examination in Geology, Zoology, or Botany will be required to exhibit practical acquaintance with those subjects to at least the same extent as candidates who offer themselves for examination in any one of the special subjects above mentioned are required to do with reference to those subjects. But they will not be required to go through the same amount of practical work in the departments of Biology not specially connected with Geology, Zoology, or Botany as candidates who do not bring up any one of these three subjects.

NOTES

THE Senior Wrangler for the present year is Mr. Robert Rumey Webb, son of the late Mr. Thomas Webb, of Monmouth. He was educated under the Rev. C. M. Roberts, M.A. (St. John's College, Cambridge), at the Monmouth Grammar School, and entered at St. John's College in October 1863, having previously obtained a Somerset Exhibition by open competition. Mr. Webb's college tutor was Mr. J. E. Sandys; his private tutor Mr. Routh, of St. Peter's. Mr. Horace Lamb, the Second Wrangler, was born at Stockport, in November 1849, was educated at the Stockport Grammar School, and for a short time studied at Owens College, Manchester. In the year 1868 he gained a minor scholarship at Trinity College, and in 1870 was elected to a Foundation Scholarship. He was placed in the first class in the First B.A. Mathematical Honour Examination in the University of London in 1870; and in the succeeding year gained the Sheepshanks Astronomical Exhibition at Trinity College. His college tutor was Mr. Prior; private tutor, Mr. Routh, of St. Peter's. Mr. John Bascombe Lock, the Third Wrangler, son of Mr. Joseph Lock, of Dorchester, was educated at the Bristol Grammar School. In the Easter Term of 1868 he obtained an open Mathematical Scholarship at Caius College, where he obtained a Foundation Scholarship in May. Mr. Routh was his private tutor, and Mr. N. M. Ferrers his college tutor.

THE following are the lectures on Science at the University of Oxford this term:—The Rev. Bartholomew Price, the Sedleian Professor of Natural Philosophy, on Light; the Savilian Professor of Astronomy, Rev. C. Prichard, on Newton's "Principia" and the Lunar Theory; Prof. Clifton, Professor of Experimental Philosophy, on Experimental Optics; Prof. Westwood, Professor of Zoology, on the Classes and Orders of Articulated Animals; Prof. Phillips, Professor of Geology, on the Geology of the country round Oxford; Prof. Rolleston, Professor of Anatomy, on Digestion. In addition to these lectures Prof. Clifton announces that the physical laboratory of the University will be open daily for instruction in Practical Physics from 10 to 4 o'clock each day. Prof. Rolleston proposes to form classes for practical instruction as in former Terms. The Chemical Laboratory is open as usual for Quantitative and Qualitative analysis. Dr. Acland, the Regius Professor of Medicine, also announces that, in addition to his course of clinical instruction at the infirmary, he "will also on days and places to be hereafter

mentioned demonstrate on the spot sanitary defects in a town and in a village, illustrating thereon principles of general and special sanitary administration." In the Laboratory of the Medical Department at the University Museum various methods of examining water and other subjects connected with sanitary science will be taught, commencing on February 1, by Mr. C. C. Pöde, M.B., Exeter College, with the assistance of Mr. S. J. Sharkey, B.A., of Jesus College. Those lectures and demonstrations on sanitary matters are a novel and peculiarly-interesting feature introduced this Term for the first time.

DR. PAGET has been appointed Regius Professor of Medicine at the University of Cambridge.

THE Professorship of Botany in the Royal College of Science for Ireland is vacant by the resignation of Prof. W. T. Thiselton-Dyer.

THE King of Italy has conferred upon Mr. Edward Whymper, Vice-President of the Alpine Club, the decoration of Chevalier of the Order of St. Maurice et Lazare, "in recognition of the value of his recently published magnificent work upon the Alps."

WE have to record the death, on Saturday last, of Dr. W. Baird, F.R.S., of the Zoological Department of the British Museum, at the age of 69.

THE American Academy of Arts and Sciences on the 9th of January presented the American Rumford Medals to Mr. J. Harrison, jun., of Philadelphia, for his invention of safety boilers. The medals are provided for by an endowment fund or gift of 5,000 dols. in the United States Funds, to the Academy, made by Count Rumford in 1796. By the conditions of this endowment the interest of the fund is to be applied "every second year" to the procuring of two medals, one of gold and one of silver, in value equal to the amount of two years' interest of the fund (600 dols.), and these medals (or their equivalent in money) are to be awarded to the author of the most important discovery or useful improvement in the application of heat or light, which shall, in the opinion of the Academy, "tend most to promote the good of mankind." Although the fund was provided at that early day no discovery or improvement of sufficient importance, in the opinion of the Academy, appeared until 1859, when the first award was made to Dr. Robert Hare, of Philadelphia, for his compound oxy-hydrogen blowpipe and improvements in galvanic apparatus. Since then the awards of the medal have been as follows:—1862, John B. Ericsson, for his caloric engine; 1865, Prof. Daniel Treadwell (Harvard College), for improvements in the management of heat; 1867, Alvan Clark, for improvement in lens of refracting telescope; 1870, George H. Corliss, Providence, for improvements in the steam-engine; 1871, Joseph Harrison, jun., Philadelphia, for "the mode of constructing steam boilers invented and perfected by him," which "secures great safety in the use of high-pressure steam, and is, therefore an important improvement in the application of heat."

A MEETING in aid of the Livingstone Exploration Fund was held in the City of London on Tuesday last, the Lord Mayor in the chair; the subscriptions received in the room amounting to over 250*l*. Sir H. Rawlinson announced at the meeting that he had that day received from the Foreign Office a despatch which was to be presented by Lieutenant Llewellyn Dawson to the Government agent at Zanzibar, in which Dr. Kirk was instructed to give to Lieutenant Dawson all the advice and assistance in his power, and was authorised to advance any sum which might be required for the purposes of the expedition within the limit of the balance of the Government grant of 1,000*l*, which remained in his hands, and which, according to the last account, amounted to 650*l*. He also stated that the subscriptions already received reached 2,700*l*. or 2,800*l*.

THE Second Course of Cantor Lectures for the session will be delivered by the Rev. Arthur Rigg, M.A., on "Mechanism." The first lecture will be given on Monday evening, Feb. 5, at eight o'clock, and the remainder on following Mondays till March 11.

THE *Athenæum* states that Mr. E. J. Reed, C.B., late Chief Constructor of the Navy, is about to establish a new quarterly magazine of a scientific character, the first number of which will appear early in March, to be devoted to the improvement of naval architecture, marine engineering, steam navigation, and seamanship generally. It will be called *Naval Science*, and will be under the joint editorship of the Rev. Dr. Woolley, Director of Education to the Admiralty, and Mr. Reed.

THE following are the number of entries for the classes at the Newcastle College of Physical Science for the present term:—Evening classes—chemistry, 36 (including one lady); physics, 40 (including four ladies); geology, 19; advanced mathematics, 15; elementary mathematics, 24; political economy, 12 (this class will not be held). Day classes. New entries at Epiphany term—chemistry, 8; physics, 7; mathematics, 8; geology, 3.

THE following are appointed trustees to the Alder Memorial Fund, of which we spoke last week:—Sir W. G. Armstrong, Mr. L. L. Bell, Mr. J. Blacklock, Mr. H. B. Brady, Mr. A. Hancock, Mr. D. P. Morison, Mr. R. S. Newall, and the Rev. A. M. Norman; who have received the following suggestion from the subscribers:—"That it should be suggested to the trustees that the establishment of a College of Physical Science in Newcastle appears to offer opportunities for the employment of the fund in furtherance of zoological science, more likely to be generally appreciated as a memorial of our late distinguished naturalist than the scheme originally proposed, and that in the event of the establishment of a chair of biology in the College, the application of the interest of the fund might properly take the form of a scholarship or other reward for proficiency in zoology, to be associated with Mr. Alder's name."

THE Natural History Society of Newcastle-on-Tyne has received a gift of 20*l.* from the Misses Bewick; which sum is to be applied in defraying the cost of new cabinets as they might be required. The Society has also been presented with a most valuable collection of fossils from Mr. M. R. Pryor, Fellow of Trinity College, Cambridge, consisting of about 140 species of Upper Greensand fossils from Cambridgeshire; 130 species from the Red Crag; a fine series from the Lower Greensand Coprolite Bed of the Eastern Counties; a fair representative collection from the Oxford Clay at St. Ives, Huntingdon; and a number of Chalk fossils; all admirably mounted and named.

A RESOLUTION has been presented to the Congress of the United States providing for the printing of a number of copies of the report of the investigation by Prof. Hayden upon the geology of Nebraska and Wyoming territory.

IN a letter from Government House, Barbadoes, January 6, 1872, to one of our contributors, the Hon. Rawson Rawson writes:—"Agassiz, Count Pourtales, and a party of savans have just left this. The United States surveying vessel in which they go to the Pacific had to put in for some slight repairs. They were here for two days and I went on board and spent one day with them. Agassiz pronounced my collection of shells quite unique in series of specimens, from the youngest stage to adult. He was in ecstasies with the *Holopus*,* which he spent hours in examining, and I had to let him take it away to describe it in all detail. He had seen and studied D'Orbigny's *H. rangii*, and thinks mine the same species, but that it is of the normal form, while the one D'Orbigny

described was both incomplete and abnormal. I had Dr. Gray's sketch with me, and certainly the resemblance to it was very great. I think I may fairly regard it as the gem of my collection; but in writing of it I must not forget to tell you of our day's dredging. It was successful beyond our expectations—four live specimens of a fine new crinoid, like *Apiocrinus*, which Agassiz was able to watch alive for hours; a *Pleuromaria Quoyana*, of which the artist was able to draw the animal; a new and wonderfully beautiful species of *Latiaxis*, Brachiopods in any number, vitreous sponges in mass, some new Echini. You can fancy the state Agassiz was in, and time would quite fail me to tell you of all the interesting things he said about the various forms as he recognised them. Need I say that all this has determined me to make an effort to get our shores dredged, beginning in shallow and going out to the depth they dredged at, i.e., about forty or fifty fathoms. We shall, doubtless, get lots of treasures, upon the duplicates of which you shall have first claim."

PROF. B. A. GOULD writes from the Argentine National Observatory at Cordoba, under date December 8, 1871, that the new observatory had then been formally inaugurated about six weeks, after a series of most unexpected and vexatious obstacles and delays. The climate had, however, proved far less propitious than had been expected, the cloudy nights being nearly as numerous as the clear ones, although no rain falls during one half the year. When, however, the sky is clear, it is of a wondrous transparency, stars of the seventh magnitude being distinctly visible on favourable nights to the naked eye, and the planets magnificent in their brilliancy. The large equatorial was already in adjustment, and Prof. Gould had had some beautiful views of Saturn. Owing to the breaking out of the epidemic in Buenos Aires at the beginning of 1871, all communication with Europe, by post or otherwise, had been almost entirely suspended during the year; faint rumours of the success of the eclipse observations in Spain in December 1870 had but just reached Cordoba.

A BLACK marble slab, bearing the following inscription in brass characters, has just been placed over the grave of the late Sir John Herschel, in the north aisle of the nave of Westminster Abbey:—

JOHANNES HERSCHEL
GULIELMI HERSCHEL
NATU OPERE FAMA
FILII UNICUS
"CELI EXPLORATIS"
HIC PROPE NEWTONUM
REQUIESCIT
GENERATIO ET GENERATIO
MIRACILIA DEI NARRABUNT
PSALM. CXLV. 4, 5.
VIXIT LXXIX. ANNOS
OBIIT UNDECIMO DIE MAII
A. D. MDCCCLXXI.

THE following account of the fall of a meteorite is taken from Gruithuisen's "Naturgeschichte des Gestirnten Himmels:—"On July 24, 1790, at 10.30 P.M. a fiery globe larger and brighter than the full moon, as seen from Mormes, passed from S. to N. in 2 s., and burst leaving a white cloud. 3 m. after explosion the two observers heard a heavy thunder-clap that shook the windows and opened some of them. The 15 leagues distant chain of the Pyrenees gave a continuous echo lasting 4 s. The fragments fell in extraordinary quantity between Juliac and Barbotan, 4 hours N. and 5 hours NE. from Mormes; they fell fused so as to bake the impression of straw, and make no sound on the roof of houses, weighing 4 "loth" to 20 "pfund." The ball of fire was seen from Bayonne, Auch, Pau, Tanbes, Bordeaux, and Toulouse, from the latter place only as something larger than a fixed star.

WE give a fuller account of the volcanic eruption at Ternate

* Vide Notes on *Holopus*. By Dr. J. E. Gray. Annals and Mag. Nat. Hist. vol. viii., 4th series, p. 394.

alluded to by our correspondent Mr. A. B. Meyer in *NATURE* for January 18. The Batavia *Handelsblad* of Sept. 25 states that on the afternoon of Aug. 7 a violent earthquake was felt, of which the exact direction was unknown. The Ternate mountain had from 9 A.M. caused a dull, rumbling sound to be heard, varied at intervals by loud reports, and began in the course of the day to cast out streams of lava. The sky looked dark, and the whole country round about was darkened by the down-coming clouds of smoke. Luckily a southerly wind sprung up, which gave another direction to the glowing lava-streams flowing landwards, and led the fire in seven currents to the ravines. This frightful natural phenomenon held on during the night between the 7th and the 8th. The inhabitants, thinking their island to be doomed, could not sleep, and passed the night outside their houses looking up anxiously at the furious volcano which seemed to threaten them all with certain destruction. At day-break the outburst became still worse, and the population began to fly to the islands of Tidore and Halmahera. The eruption of fire and stones held on for about twelve days, after which it became less. The damage done to houses and plantations is enormous, but has not as yet been accurately ascertained. This outburst was the most violent known at Ternate within the memory of man. The whole island shook from the underground motion. A moment of rest was followed by another explosion, which shook the houses to their foundations. There were, luckily, only some slight earthquake-shocks felt. On Aug. 28 the volcano was again at rest, at least, only a small cloud was seen coming out of the crater.

WE take the following from the *Times of India*:—"The *Western Star*, which is *par excellence*, the journal for marvels, tells the following story of a murder:—The manner in which the murderers were detected would, our contemporary adds, if true, go far to prove the Darwinian theory. The story briefly told is this: A Madraſsee had a monkey which he was very fond of. The man had occasion to go on a journey, and took with him money and jewels, and his chum the monkey. Some rogues determined to rob him of everything he had; and accordingly they lay in wait for him and murdered him. Having secured the money and jewels they threw the murdered man into a dry well, and having covered it up with twigs and dry leaves, they went home. The monkey, who was on the top of a tree, saw the whole of the proceedings, and when the murderers departed he came down and made tracks for the Tahsildar's house, and by his cries and moans attracted the attention of that functionary. Inviting the Tahsildar by dumb signs to follow him, the monkey went to the well and pointed downwards. The Tahsildar thereupon got men to go down, and of course the body was discovered. The monkey then led the men to the place where the jewels and money were buried. He then took them to the bazaars, and as soon as he caught sight of one of the murderers he ran after him, bit him in the leg, and would not let him go till he was secured. In this way all the murderers were caught. The men, it is said, have confessed their crime, and they now stand committed for trial before the Tellicherry Court at the ensuing session. That monkey, we think, ought to be made an inspector of the police."

THE Panama papers report an increasing demand for the Colombian gaucho, and urge the Government to the enactment of regulations to prevent the entire destruction of the forests of these trees in Darien, where they are most abundant. Instead of simply treating the trees for the juice, as the maples are managed in the United States, the tree is cut down, and, of course, no further benefit can be derived from it. In illustration of the extent to which this vegetable product is now being collected, the *Panama Star* and *Herald* informs us that 160 tons had just been brought to that city as the cargo of a single vessel, mostly from the vicinity of Guayaquil.

SCIENTIFIC SERIALS

THE *Scottish Naturalist* for January.—This number is mainly occupied by a number of short papers illustrative of various subjects of interest or novelty in the natural history of Scotland, among which we may notice especially the British species of *Crambus*, a genus of moths, by the Editor; on the Cachalot or Sperm-whale (*Physeter macrocephalus*) of the north-east of Scotland, by Robt. Walker, with plate; and the commencement of the Editor's "Insecta Scotica," an essay to catalogue the insects inhabiting Scotland, with a map to show the natural divisions of the country into the 12 districts adopted in the list. The introductory remarks to the Editor's catalogue of Lepidoptera are valuable, and the article, when completed, promises to be an important contribution to British zoological literature.

THE *American Journal of Science and Art* for November 1871 opens with a continuation of Prof. Le Conte's elaborate paper on "Some Phenomena of Binocular Vision." Prof. Dana, in an article on the position and height of the elevated plateau in which the glacier of New England in the glacial era, had its origin, considers that the idea of one central glacier source for the whole continent is without foundation. The icy plateau he locates at the watershed between the St. Lawrence valley and Hudson's Bay at an altitude at least 4,500 feet above the present level. With the exception of a preliminary catalogue of the bright lines in the spectrum of the chromosphere, by Prof. C. A. Young, which we propose to reprint, the remaining papers in this number are chiefly chemical, and of varied interest, but of which it would be impossible to give the substance in the form of a brief abstract.

The first article in the December number treats of the geological history of the Gulf of Mexico, and is accompanied by a map, which is, unfortunately, not coloured, and is hence somewhat obscure. The article is divided into three portions, treating respectively of the cretaceous period, the tertiary period, and the quaternary beds. This is followed by an article by Asaph Hall, on the Astronomical Proof of a Resisting Medium in Space. It will be remembered that one of the main proofs of the existence of the interstellar æther is the retardation of Encke's Comet. So long ago as the year 1819 Encke calculated that the periodic times of the comet had diminished to the extent of more than half a day during thirty-three years. Thus the periodic time between 1786 and 1795 was 1,208.112 days, while between 1805 and 1819 it was 1,207.424; and in order to account for the diminution, Encke adopted the hypothesis of a resisting medium in space. From later observations of this and other comets, Mr. Hall is led to the conclusion that comets furnish no proof of the existence of the æther, and that the retardation of Encke's comet is due to some unknown cause, possibly to the fact of its passing through streams of meteoric matter, which may influence its motion.—Mr. Southworth gives an account of a new Micrometric Goniometer eye-piece, formed by means of a micrometer capable of measuring to the $\frac{1}{2500}$ of an inch.—Dr. Dawson contributes an article on the bearing of Devonian Botany on questions as to the Origin and Extinction of Species, in which he expresses a hope that the further study of fossil plants may enable us thus to approach to a comprehension of the laws of the creation, as distinguished from those of the continual existence of species. The other articles relate to the American Spongilla, a Craspedote, Flagellate Infusorian, by Professor H. James Clark; description of a Printing Chronograph, by the use of which it has been proved that "for three observers, twice as many observations can be reduced in the same time as when a recording chronograph is employed." The next paper was read before the American Association at Indianapolis, and discusses the longitude determination across the Continent. This embodies results obtained by the Coast Survey, in their endeavours to determine the longitude of San Francisco and various intermediate points by telegraphic exchange of clock signals with the Harvard Observatory.—The remaining papers treat of the Invertebrata dredged in Lake Superior in 1871; and of Kilauea and Mauna Loa.

In the number for January 1872, the commencement of Vol. iii. of the new series, we find a valuable article on Alpine geology by Prof. Sterry Hunt, in the form of a review of Favre's *Recherches Géologiques*. Mr. John De Laski notices the evidence of glacial action on Mount Katahdin, the highest land in Maine, and of the Devonian formation, now 5,000 feet above the sea, the top of which he believes to have been overridden